

WHAT IS CLAIMED IS:

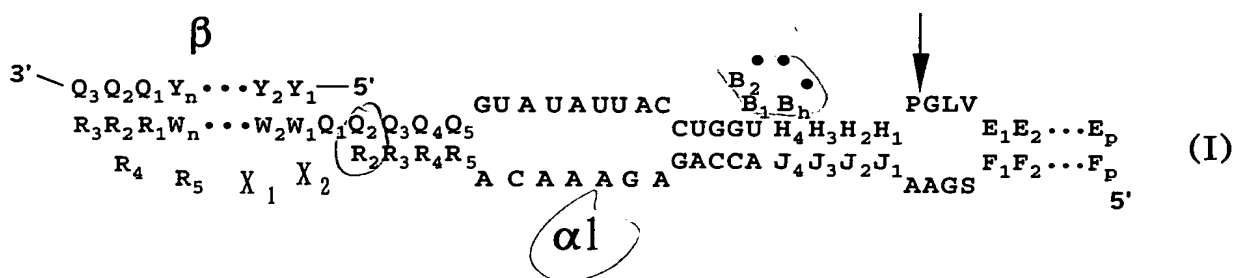
1. A hairpin ribozyme activated by changes in its stem-and-loop three-dimensional structure due to hybridization with an oligonucleotide.

2. The hairpin ribozyme according to claim 1, wherein the hybridization with an oligonucleotide is constituted by 3 to 23 base pairs.

3. The hairpin ribozyme according to claim 1, wherein the oligonucleotide is a part of a target nucleotide sequence.

4. The hairpin ribozyme according to claim 1, which is a cis-form ribozyme which first self-cleaves upon activation.

5. The hairpin ribozyme according to claim 4, which exhibits a complex structure with an oligonucleotide as shown in general formula (I) or (II)



[wherein  $\alpha 1$  represents a ribozyme sequence and  $\beta$  represents an oligonucleotide sequence:

in which U represents a uracil nucleotide, C represents a cytosine nucleotide, A represents an adenine nucleotide, and G represents a guanine nucleotide;

B1 to Bh, E1 to Ep, H1 to H4, Q1 to Q5, W1 to Wn, and X1 and X2, which may be the same or different, each represent any of a uracil nucleotide, an adenine nucleotide, a cytosine nucleotide, or a guanine nucleotide;

F1 to Fp, J1 to J4, R1 to R5, and Y1 to Yn each represent a nucleotide, which is complementary to E1 to Ep, H1 to H4, Q1 to Q5, and W1 to Wn, respectively;

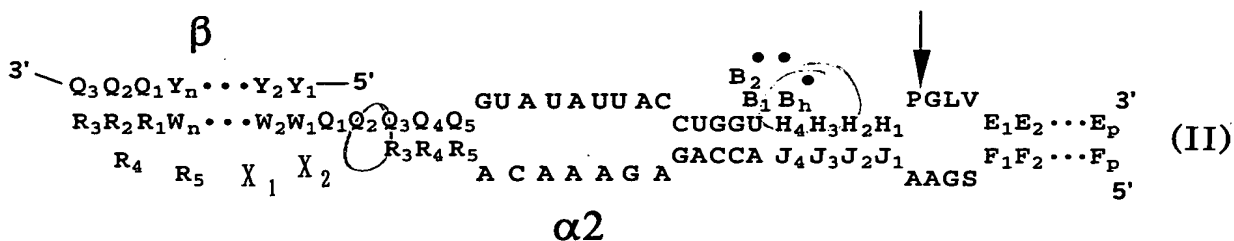
S represents an adenine nucleotide or a cytosine nucleotide;

P represents any of a uracil nucleotide, an adenine nucleotide, a cytosine nucleotide, or a guanine nucleotide;

L represents any of a uracil nucleotide, an adenine nucleotide, or a cytosine nucleotide;

V represents an adenine nucleotide when S is a cytosine nucleotide and represents a uracil nucleotide or a cytosine nucleotide when S is an adenine nucleotide; and

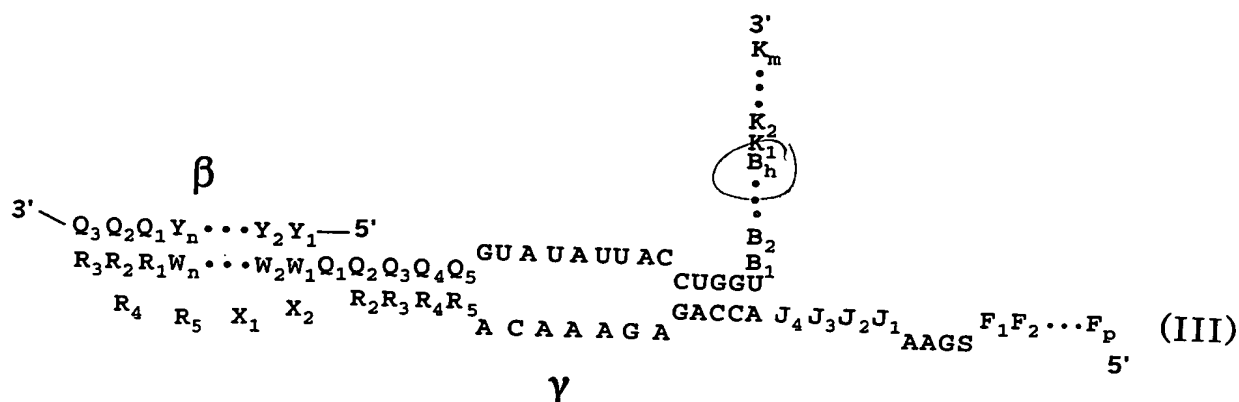
h is an integer from 3 to 20, n is an integer from 1 to 10, and p is an integer from 1 to 10.]



[wherein  $\alpha 2$  represents a ribozyme sequence and  $\beta$  represents an oligonucleotide sequence with symbols used herein conveying the same meanings as used in general formula (I).]

6. The hairpin ribozyme according to claim 1, which is a trans-form ribozyme cleaving another ribonucleotide sequence upon activation.

7. The hairpin ribozyme according to claim 6, which exhibits a complex structure with an oligonucleotide as shown in general formula (III)



[wherein  $\gamma$  represents a ribozyme sequence and  $\beta$  represents an oligonucleotide sequence:

B1 to Bh, F1 to Fp, J1 to J4, K1 to Km, Q1 to Q5, W1 to Wn, and X1 and X2, which may be the same or different, each represent any of a uracil nucleotide, an adenine nucleotide, a cytosine nucleotide, or a guanine nucleotide;

S represents an adenine nucleotide or a cytosine nucleotide; and

8. An isolated DNA encoding a ribonucleotide which constitutes the hairpin ribozyme according to claim 1.

10. A host cell into which the recombinant vector according to claim 9 has been introduced.

and an inactive ribozyme.

12. The method for activating a hairpin ribozyme according to claim 11, wherein one or more nucleotides in the oligonucleotide are 2'-O-methylated.

13. A method for detecting a target nucleotide sequence with the hairpin ribozyme according to claim 1.

14. The method for detecting according to claim 13, comprising detecting the presence of a target nucleotide sequence in a sample contained on a DNA chip.

15. A method for detecting a target nucleotide sequence, comprising detecting a fragment cleaved by the self-cleavage of the hairpin ribozyme according to claim 1.

16. The method for detecting according to claim 13, comprising detecting a cleaved fragment using a fluorochrome or a radioactive label.

17. A detection kit for a target nucleotide sequence in a sample, comprising the hairpin ribozyme according to claim 1.

18. A method for cleaving a ribonucleotide sequence, using the hairpin ribozyme according to claim 1.

19. The method for cleaving according to claim 18, wherein administration of the hairpin ribozyme according to claim 1 is carried out separately from that of the oligonucleotide.

20. The method for cleaving according to claim 18, wherein one or more nucleotides in the oligonucleotide are 2'-O-methylated.

21. A pharmaceutical composition comprising the hairpin ribozyme according to claim 1.